Utah's Citizen Monitoring Program

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WATER QUALITY
UTAH STATE UNIVERSITY EXTENSION

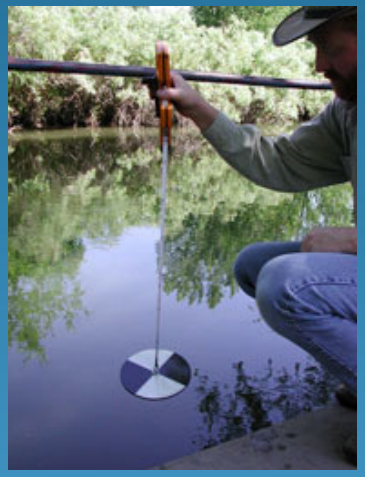
Water is Life : Quality Matters

Why citizen monitoring?

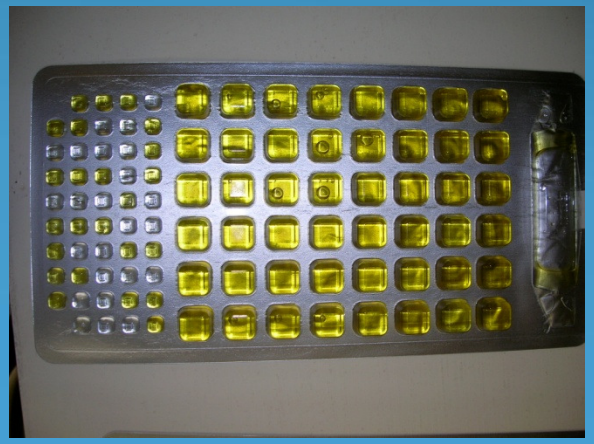
- Data collection
  - Leads to better management and protection of waterbodies
- Educate citizens on the importance of healthy lakes, how lakes function, and how they are monitored
- Gives citizens a sense of ownership of local waterbodies
- Low cost!

Current monitoring program

- Two parts
  - Utah Lake Watch



  - E. Coli



Utah Lake Watch

- Facts

Utah Lake Watch

- Facts
  - In 2009
    - 13 lakes monitored
    - 15 volunteers/groups

    2010 data coming…

  - Since 2002
    - 37 lakes monitored
    - 40 + volunteers/groups

Utah Lake Watch

- Who are our volunteers
  - State Park Rangers
  - Division of Wildlife Resources professionals
  - Summer vacationers (i.e. Bear Lake)
  - School teachers, retired teachers
  - Community citizens

Utah Lake Watch

- Facts
- Current recruiting methods
  - Posters, park managers, website, newspaper, radio, video.
- Training

2010 Utah Lake Watch Volunteer Monitoring Datasheet

This is waterproof paper - please write in pencil

Lake _____ **Volunteers** _____

GPS Coordinates _____ **Vessel:** Boat Kayak Canoe Dock
Other:_____

Description of location on lake:_____

_____

	MO/DA/YR	Time (24h)	Secchi (m)	Yesterday's Weather	Today's Weather	Comments
EX.	7/15/10	13:00	4.53	2,5,6	4,5	Water extra murky today from yesterday's rain.

Weather Conditions:

1. clear
2. rain
3. fog
4. partly cloudy
5. gusty wind
6. continuous wind
7. dust
8. other (specify)

See Instructions on Back

Utah Lake Watch

- Facts
- Current recruiting methods
  - Posters, park managers, website, newspaper, radio, video.
- Training
- Collection of data
  - Try to get at least one sample every 2 weeks May – September.
- Compiling Utah Lake Watch Report

Table 1. Maximum, minimum, and average depths, along with the number of measurements collected at each site and the months of collection at the site.

Lake / Reservoir	Max (m)	Min (m)	Average (m)	Number of Measurements Collected	Months of Collection
Bear Lake 1	7.50	5.10	6.30	6	June-September
Bear Lake 2	3.15	2.40	2.93	12	May-August
Burreston Pond	2.00	2.00	2.00	1	August
Causey Reservoir	5.60	2.50	3.50	3	June-August
Deer Creek Reservoir	6.00	3.60	5.00	6	June-September
Grantsville Reservoir	2.55	2.55	2.55	1	July
Hyrum Reservoir	1.60	1.40	1.50	3	August-September
Otter Creek Reservoir	2.20	1.25	1.64	5	July-August
Pineview Reservoir 1	5.60	4.30	4.77	6	July-September
Pineview Reservoir 2	5.70	2.10	4.30	8	May-September
Red Fleet Reservoir	2.80	0.90	1.83	7	June-September
Starvation Reservoir	8.30	2.20	5.10	15	April-September
Steinaker Reservoir	4.50	2.10	3.10	7	June-September
Utah Lake 1	0.41	0.24	0.33	4	June-August
Utah Lake 2	0.40	0.20	0.32	3	June-July
Yuba Reservoir	1.65	0.77	1.30	7	June-August

Utah Lake Watch Report 2009

Utah State University
Water Quality Extension

Prepared by:
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WATER QUALITY
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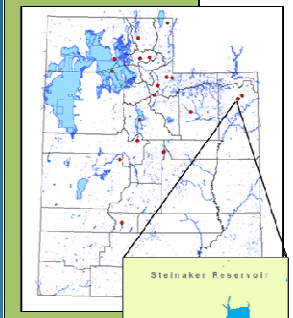
Steinaker Reservoir Summary Data

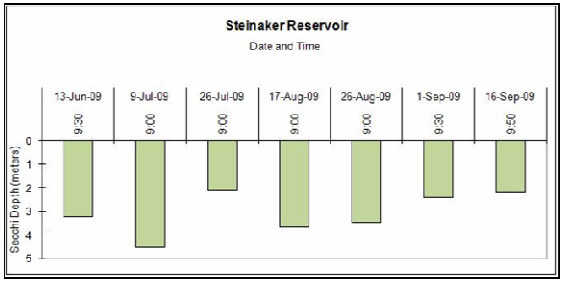
Volunteer Monitor: Mike Murray

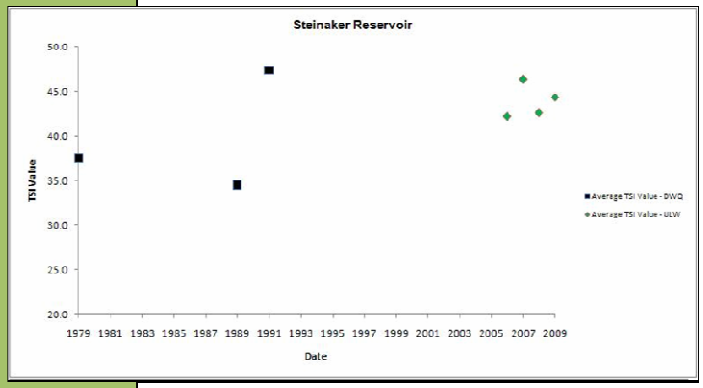
Steinaker Reservoir is located north of Vernal, Utah. As a state park, the reservoir offers year round recreational opportunities (Judd, 1997). The average Secchi measurement in Steinaker Reservoir for 2009 was 3.1m giving an average TSI value of 44.3. According to ULW data, Steinaker Reservoir is in a mesotrophic state.



Location: N 40° 30.423' W109° 31.918' In front of the dam, 200 yards from the bank.

Date	Time	Secchi Depth	TSI	Weather
6/13/2009	9:30	3.2	43.2	Clear
7/9/2009	9:00	4.5	38.3	Clear
7/26/2009	9:00	2.1	49.3	Overcast
8/17/2009	9:00	3.65	41.3	Clear
8/26/2009	9:00	3.45	42.2	Partly cloudy
9/1/2009	9:30	2.4	47.4	Clear
9/16/2009	9:50	2.2	48.6	Clear
	Average	3.1	44.3	





Challenges for Utah Lake Watch

- How to recruit
- Consistent data collection
- Volunteer retention
- Details to give volunteers regarding how data is used
  - What happens to my data?
  - Is data useful to state or other agencies?
  - Monitors want to make a difference, help achieve a goal.
- Simplicity
  - Some volunteers are disappointed by how easy the process is.

E. coli

- Who are our volunteers?
  - State Park Rangers
  - Division of Wildlife Resources professionals
  - Water Quality professionals
  - Retired teachers

E. coli

- Facts
  - In 2009
    - 24 lakes and 2 rivers monitored 1x during summer
    - 7 volunteers/groups, 6 USU staff

    In 2010
    - 15 lakes monitored 2x per month
    - 8 volunteers/groups, 5 USU staff

E. coli

- Facts
- Current recruiting methods
  - Posters, park managers, website, newspaper, radio.
- Training
- Collection of data
  - Two samples every month May – September.
- 2009 E.coli report, 2010 provide data to DWQ.

Challenges for E.coli

- Recruiting?
- Retention of volunteers.
- Details to give new volunteers regarding how the data is used:
- Who is using the data?
- Where is data reported?
- Will volunteer be needed from year to year for the same waterbody? Project?
- Is the data they are collecting helping make a change or difference?
- Is the data being used?
- Placement of equipment in the state.
  - Is it feasible to have volunteers collect data using Idexx equipment?
  - Could we do some sort of a “pre-test” to find initial problem lakes, then move to more intense testing? i.e. easygel

EPA Volunteer monitoring…

Volunteers Most Commonly Monitor:

- Water temperature
- Dissolved oxygen
- pH
- Macroinvertebrates
- Phosphorus
- Nitrogen
- Flow/water level
- Turbidity
- Habitat
- Secchi transparency
- Bacteria
- Land use

EPA Volunteer monitoring…

In general monitors:

- establish baseline conditions or trends for waters that would otherwise go unmonitored
- screen water for potential problems, for further study or for restoration efforts
- evaluate the success of best management practices (BMPs) designed to mitigate problems.

EPA's advice…

- Start small.
- Keep your goals—and those of your volunteers—realistic
- Planning pays off.
- Make connections.
- Develop volunteer leadership.
- Pamper your volunteers.
- Use the data.

Ideas…

- Watershed Day, Watershed Festivals
  - Community service projects
  - Youth activities
  - Training days throughout state
  - TMDL or priority waterbodies?
- Adopt a Waterbody
  - Need to point monitors toward a waterbody in need.
- Recruiting/Retention
  - Participation based incentive program

Data…

- Additional Parameters
  - D.O. & Temperature profiles?
  - E.coli?
  - Chlorophyll
  - Stormwater
  - Nutrients
  - What else?